

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-30 were previously cancelled.

1-30. (Cancelled)

31. (Currently amended) An isolated DNA comprising SEQ ID NO: 1 and variants and alleles thereof that codes for expression of the human Death Inducer-Obliterator 1 (DIO-1) Gene.

32. (Currently amended) The isolated DNA of Claim 31, wherein the DNA sequence is SEQ ID NO: 1.

33. (Previously amended) An isolated DNA comprising SEQ ID NO: 3 and variants and alleles thereof that codes for expression of the murine DIO-1 Gene.

34. (Currently amended) The isolated DNA of Claim 33, wherein the DNA sequence is SEQ ID NO: 3.

35. (Previously amended) The isolated DNA of Claim 31, comprising a fragment comprising an N-terminal domain, a central non-canonical Zn finger domain, and a C-terminus domain containing a K-rich region.

36. (Previously amended) The isolated DNA of Claim 33, comprising a fragment comprising an N-terminal domain, a central non-canonical Zn finger domain, and a C-terminus domain containing a K-rich region.

37. (Currently amended) An isolated DIO-1 polypeptide coded for by SEQ ID NO: 1 and variants and alleles thereof.

38. (Currently amended) The polypeptide of Claim 37, comprising the mature human amino acid sequence of SEQ ID NO: 2 and variants thereof.

39. (Previously amended) An isolated DIO-1 polypeptide derived from the DNA sequence SEQ ID NO: 3 and variants and alleles thereof.

40. (Currently amended) A polypeptide according to Claim 39, comprising[[,]] the mature murine amino acid sequence in SEQ ID NO: 4.

41. (Currently amended) A nucleic acid probe for the detection of a nucleic acid sequence encoding a polypeptide of SEQ ID NO: 2 or SEQ ID NO: 4.

42. (Currently amended) The nucleic acid probe of Claim 41, wherein said probe comprises at least 14 contiguous nucleotides of SEQ ID NO: 1 or SEQ ID NO: 3.

43. (Currently amended) The isolated DNA of SEQ ID NO: 1[[,]] or SEQ ID NO: 3, wherein the isolated DNA comprises a cDNA sequence.

44. (Currently amended) An expression vector containing a DNA sequence of SEQ ID NO: 1[[,]] or SEQ ID NO: 3, or variants, alleles and fragments thereof.

45. (Currently amended) A cell transformed with a sequence of SEQ ID NO: 1 or SEQ ID NO: 3[,] such that it allows the direct replication and expression of said sequence.

46. (Previously presented) The cell of Claim 45 wherein the cell is a mammalian or a bacterial cell

47. (Currently amended) A process for producing a protein encoding SEQ ID NO: 2[,] or SEQ ID NO: 4 and alleles and variants thereof, comprising culturing a cell of claim 45 in a suitable culture medium and isolating the protein thereof.

48. (Previously presented) The process of Claim 47 wherein the cell is a mammalian or a bacterial cell.

49. (Currently amended) A method for identifying clones encoding a DIO-1 polypeptide of SEQ ID NO: 2[,] or SEQ ID NO: 4, comprising screening a genomic or cDNA library with a nucleic acid probe according to Claim 41 under low stringency hybridization conditions, and identifying those clones which display a substantial degree of hybridization to said probe.

50. (Currently amended) A method of identifying agonists and antagonists of the protein of SEQ ID NO: 2[,] or SEQ ID NO: 4, comprising transduction or transfection of a mammalian cell line with an expression vector comprising nucleic acid sequences lacking the nuclear localization sequences or lacking the Zn finger domain or lacking the acidic domain or lacking the lysine-rich domain and thereafter identifying the agonist or antagonist interacting with the DIO-1 gene.

51. (Previously presented) An agonist or antagonist according to Claim 50.

52. (Currently amended) A method of identifying ligands with which the polypeptide of SEQ ID NO: 2, or SEQ ID NO: 4 interacts following cloning into and expression in appropriate vectors and using the two-hybrid method.

53. (Previously amended) A method to produce specific monoclonal and polyclonal antibodies against the polypeptide encoded by SEQ ID NO: 2 or SEQ ID NO: 4 comprising the injection of the polypeptide into a mammal.

54. (Previously amended) A method for treatment of diseases which are characterized by the alteration in cell death or by hyperproliferation, comprising administering compounds encoded by SEQ ID NO: 2 or SEQ ID NO: 4, or agonists or antagonists to SEQ ID NO: 2 or SEQ ID NO: 4.

55. (Currently amended) The method of Claim 54, comprising[[.]] administering a therapeutically effective amount of the compound.

56. (Previously amended) The method according to Claim 54, in which the disease is cancer, an autoimmune disease, diabetes, rheumatoid arthritis, benign and malignant tumors or hyperproliferative skin disorders.

57. (Previously amended) A method for treatment of diseases which are characterized in the alteration in cell death or by hyperproliferation, comprising, introducing into a mammal a nucleic acid vector according to Claim 44 and wherein said nucleic acid vector is capable of transforming a cell in vivo and expressing said polypeptide in said transformed cell.

58. (Currently amended) A pharmaceutical formulation comprising compounds of SEQ ID NO: 2[[,]] or SEQ ID NO: 4, agonists or antagonists to SEQ ID NO: 2[[,]] or SEQ ID NO: 4 and one or more therapeutically acceptable excipients.

59. (Currently amended) A method for identifying a ligand to SEQ ID NO: 2[[,]] or SEQ ID NO: 4, or agonists or antagonists to SEQ ID NO: 2[[,]] or SEQ ID NO: 4, comprising[[,]] screening for an agonist or an antagonist of the polypeptide signal transduction to be used for treating metabolic, proliferative or inflammatory conditions.

60. (Currently amended) A method for identifying a substance for treatment of a condition allocated by a polypeptide of SEQ ID NO: 2 or SEQ ID NO: 4 comprising screening for an agonist or an antagonist of the polypeptide signal transduction to be used for treating metabolic, proliferative or inflammatory conditions.

61. (Currently amended) A compound according to SEQ ID NO: 2[[,]] or SEQ ID NO: 4 or agonists or antagonists to them for use as a medicament.